

SPECIFICATION AMENDMENT

For setting forth corrected antecedents for the above-indicated amended claims, the present specification is hereby amended as follows (without introducing new subject matter):

[0051] The above technical result is achieved by providing ~~[[the]]~~ an inventive method (1M) of interactive television using eye foveal ~~faulties~~ properties of an individual user or/and a group of users, a preferred embodiment (FIGS. 1, 5, 6) of which method comprises ~~consists in~~ the following steps:

[0052] ~~1. The video signal formation facility generates the video signal of the entire video image or video signals of sectors of the video image with one or different quality levels (A): at least one video signal is converted at least one time in one video signal conversion facility (C) into a series of video signals of video display sectors and/or the level of video image sectors (C1-1) is converted, and/or boundaries of video image (C1-2) are changed, all video signals are transmitted via data channels, at least, to one conversion facility and, at least, to one information display facility (B), video image (D) is formed on the screen of the information display facility, which is perceived, at least, by one user (E), characteristics are determined, at least, by one sensor at least for one eye of the user with respect to the video image formed by the information display facility, and signals coding characteristics are formed dynamically, at least, for one eye of the user (N), the above signals (O1) are transmitted, at least to one computing facility, taking into account the function of the eye resolution (L), interrogation signals coding information on the boundaries are generated, at least, in one sector of the video image (K1) and/or quality levels, at least, video image of one sector (K2) at least for one eye, at least, one user (K1-1, K2-1) and, at least, one group of users' eyes (K1-2, K2-2) are transmitted, at least to two facilities for the given forming facility (O2-1), video signal conversion facilities (O2-2) and information displays facilities (O2-3), in which the interrogation signal is taken into account with respective formation of video signals (?2), with conversion of video signals (C2) and formation of video image (D2).~~

- a video signal formation facility (herein also called 'component'), denoted as a formation component (A), forms a video signal (A) of an entire frame of a video image (A1) and/or forms

a video image or video signals of sectors of the video image (A2) with substantially equal quality levels (A1-1 /A2-1), or a video image with different quality levels (A1-2 /A2-2);

the video signals (A) are converted at least one time in at least one video signal conversion component (C) into a series of video signals of video image sectors and/or the level of quality of the video image sectors (C1-1), and/or

boundaries of the video image (C1-2) are changed;

the video signals are transmitted via data channels (B), to at least one conversion component and to at least one display component (B1);

the display component (B1) forms a video image (D) that is perceived by at least one user (E);

eye characteristics of the user are determined by employing at least one sensor in operative communication with one eye of the user, the characteristics are defined relatively to the video image formed by the display component and perceived by an eye of the user, and by employing data from the sensor to dynamically establish coding characteristics of signals (N);

the signals (N) are transmitted to at least one computing component (O1);

the computing component (O1) generates interrogation signals (K), taking into account an eye resolution (L), communicated in the coding characteristics (N); the interrogation signals (K) include a first category signals, containing information on the boundaries of at least one sector of the video image (K1), and/or a second category signals, containing information on the quality levels of at least one sector of the video image (K2) at least for one user (K1-1, K2-1) and/or for one group of users (K2-1, K2-2);

the interrogation signals (K) are transmitted, to at least components of the following types: the formation component (O2-1) , the conversion component (O2-2) and the display component (O2-3), wherein the interrogation signals (K) are taken into account with a respective concurrent adjustment in forming the video signals (A3), converting the video signals (C3), and forming the video image (D3).

[0053] [[2]] In case of a group of users perceiving a video item, reduction of the negative factor

effect on the users' health at the video information perception, protection of video information against non-authorized access, distribution and use for the reduction of the excessive volume of video information by way of use of data on individual peculiarities of the users' eyes, as well as for the amelioration of subjective estimation of video image quality by the user and increase of the ratio of the volume of useful video information to the total volume of video information at the formation of interrogation signals, we propose another method (2M), being a modification of the above indicated (1M), of claim 1, according to which the computing facility generates an interrogation signal for a group of users, which differs by the fact, that interrogation signals for the users and/or groups of users taking part of the above group, are summarized

wherein the computing component (O1) generates the interrogation signals (K) for a group of users, which group of users may contain a number of smaller sub-groups. The method further comprises: summarizing the interrogation signals (K2-1, K2-2) for the users of the group, and/or the sub-groups of users.

[0054] [[3]] For the same purpose, as given in the method (2M), but for use of the interrogation signals coding boundaries of video image sectors, we propose a method (3M), the method of claim 2, which differs from the method (2M) by the fact that the interrogation signals coding external boundaries of video image sectors (A2) of the similar quality level are summarized for each level of the video image quality coded in a series of interrogation signals (K2-1, K2-2) for a group of users; in this connection, for each interrogation signal, the external boundary of the video image sector of each quality level comprises external boundaries of all video image sectors with an indicated quality level.

[0055] [[4]] For the same purpose, as in the method (2M), but for use of the interrogation signals coding quality levels of video image sectors, we propose a method (4M), which differs from the method (2M) by the fact, that

~~interrogation signals for the indicated users' group coding the quality level of video image are summarized for each sector of video image coded in a series of interrogation signals for a group of users; in this connection, the quality level of each sector of interrogation signal video image for a group of users is taken as having the highest quality level for the corresponding sector of~~

~~video image of each interrogation signal of users or a group of users forming a part of the given group~~

summarizing the interrogation signals of the second category further comprises: coding the quality levels of a video image sector for the users or the group of users; in this connection, the quality level of each sector of the video image for the users or the group of users is coded as the highest quality level for the corresponding sector of the video image of the users or each group of the users (L2).

[0056] [[5]] When quality levels for video signals are standardized that to simplify video signal conversion process in conversion ~~facilities~~ components, to protect video information against non-authorized access, distribution and use, to decrease the requirements for the channel power (for the channel maximum traffic) of video information transmission ~~facility~~ component and computing power of conversion ~~facilities~~ components, to provide individual and grouped users with video information with minimum requirements for information display ~~facilities~~ components, to provide the compatibility of the "new" TV standards with the "existing" data transmission channels and TV standards, we propose a method (5M) ~~the method of claim 1, or claim 2 or claim 3 or claim 4~~, which differs from the methods (1M), (2M), or (3M) by the fact, that

~~a series of video signals of the entire video image of high and low quality level of video image are formed in the component of video signal formation, boundaries of each sector of video image are changed in the component of video signal conversion except for the sector of video image of the highest quality level such that the internal boundaries of the above sector correspond to the external boundaries of the video signal area with a higher quality level of video image with respect to the sector with variable boundaries~~

the forming of video signals is provided for the different quality levels, and such forming further comprises:

- transmitting the video signals via data channels (B), to at least one conversion component (B4),
- the conversion component (C), being subjected to the first category interrogation signals, changes the boundaries of each sector of the video image, except for the sector of the highest

quality level, the boundaries include internal and external boundaries, the internal boundaries of all the sectors, except the highest quality level sector, correspond to the external boundaries of the video signal with the next higher quality level (C3-2).

[0057] [[6]]. In case that a video signal of the initial video image is received from the facility of video signal formation of the same quality level, we propose a method (6M) ~~the method of claim 5~~, which differs from the method (5M) by the fact, that

~~a video signal of the entire video image is converted into a series of video signals with quality level of the video image, with the lower quality level of the video image of the initial video signal~~

the video signal of the entire video image is converted into a series of video signals of the entire video-image with different quality levels (C1-1).

[0058] [[7]] According to the methods (5M) and (6M) video signals of all quality levels, except for the lowest level, with sequential conversion and transmission from the video signal formation facility component to the information display facility component, reduce their area, whereas the sector of video image with the lowest quality level throughout the above conversion increases its area, covering in the information display facility component the area of video image achieving the level of 90-99%. With a view to reduce the required traffic of the information channel for the transmission of video signals, to increase the ratio of the volume of useful video information to the total volume of video information, we propose a method (7M) ~~the method of claim 5 or 6~~, which differs from the method (5M) by the fact, that

~~the video signal of the lowest quality level of video image is transmitted via the data channels of data transmission facility to every facility of information display directly or via the facility of video signal conversion, associated with the relevant information display facility~~

the first quality level corresponds to a basic level; the video signal of the basic level of the entire video image is transmitted via the data channels of a conventional video broadcasting system to every information display component directly or via the conversion component, associated with

the display component (B1-1); and subjected to the interrogation signals particularly containing information on the boundaries of a sector with the lowest quality level, the conversion component (C3-2-1) changes the internal boundaries of each sector of the video image (C3-2) .

[0059] [[8]] In the case that levels of video signal quality of low and high quality levels are characterized by the fact that an element of video image (e.g., pixel) of the video signal of low quality covers the whole quality of video signal elements of high quality level, with a view to reduce the required computing power of video signal formation component facility, to reduce the aggregate computing power of video signal conversion components facilities and the quantity of operations, we propose a method (8M) ~~the method of claim 5 or 6, or 7~~, which differs from the method (5M) by the fact that the video signal of the entire video image or

~~sectors of the video image of low quality level formed in the device of video signal formation, in this connection, the value of the pixel of the video image of low quality level is identified as the mean value of video signal pixels of high quality level of the video image, forming a part of the video image sector, restricted with boundaries of the above pixel (A4. C8)~~

the sectors of the video image of a predetermined low quality level formation components (A1-2 or A2-2), further comprises identifying a value of a pixel of the video image of the low quality level as the mean value of pixels values of a predetermined high quality level of the video image, wherein the pixels values forming a part of the video image sector, restricted with the boundaries of the pixel of the predetermined low quality level (I1).

[0060] [[9]] For decreasing the requirements for the channel power (maximum traffic) of video information transmission facility component and for the computing power of video signal conversion facilities components, for simplicity of computing in the video signals conversion facility component, we propose [[the]] a method (9M) ~~of any claims 5-7~~, which differs from the method (5M) by the fact, that

~~the video signal is converted into the low quality video signal in the facility component of video signal conversion, in this connection, the pixel value of video signal of low quality video image is determined, as the value of one of pixels of the video signal of high quality level of video~~

~~image, forming a part of video image section restricted with boundaries of the above pixel (A5-C9)~~

the forming the video signal of the entire video image or of the sectors of the video image of a predetermined low quality level in the formation component (A1-2 or A2-2) further comprises: identifying a value of a pixel of the video image of the low quality level as the value of one pixel of a predetermined high quality level of the video image, wherein pixels of the video image are forming a part of the video image sector, restricted with the boundaries of the pixel of the predetermined low quality level. (I2).

[0061] [[10]]. In case that quality levels for video signals are standardized by a series of quality levels, comprising the lowest quality level and a series of higher quality levels with respect to it, that to reduce the volume of the transmitted information and to reduce the requirements for the computing power of the conversion facilities components, as well as to protect video image against non-authorized access, distribution and use, we propose [[the]] a method (10M) of claim 5 or 6, or 7, or 8, or 9, which differs from the methods (5M), (6M), (7M), (8M), or (9M) by the fact, that

~~a video signal of the first extended quality level in the facility of video signal formation or in the facility of video signal conversion respectively is formed by the subtraction from the video signal of the first high quality level of the video signal of the basic quality level, whereas the video signal of the second and the further extended quality levels is formed by the subtraction from the video signal of the relevant high quality level of the video signal with the quality level reduced with respect to it respectively; in this connection, the lowest level of video signal quality is the basic level of video signal quality in the conversion facility of video signals connected with the information display facility for every video signal, except for an extended video signal corresponding to the highest quality level of video image within the limits between the external boundary of the above video signal and the external boundary of the video signal with high quality level with respect to the stated video signal; video information of the relevant video signal and video information of all video signals with quality level lower than the stated quality level is summarized, the video signal with a higher quality level is formed by summing within~~

~~the limits of the boundary of the assigned sector of video information of video signals of all quality levels~~

the quality levels include a number of quality levels starting from a lowest first quality level, a second quality level corresponds to a first extended quality level, a third quality level corresponds to a second extended quality level, and so on; the video signal of the first extended quality level in the formation component is formed by subtraction from the second quality level video signal of the first quality level video signal, whereas the video signal of the second and higher numbers extended quality levels are obtained by subtraction from the respective quality level video signal of a video signal with the next quality level (C2);

- subjected to the interrogation signals, particularly containing information on the boundaries of sectors of the video image of extended quality levels, at least one time changing the boundaries of the sectors in at least one conversion component (C3-2);

in this connection, the video signals of the second and higher numbers quality levels are converted in the conversion component connected with the display component for every video signal, wherein the converting video signals further comprises summarizing video signals of the basic quality level and of all of the extended quality levels (S3).

[0062] [[11]] For reducing the required traffic of the data channel for transmission of video signals, compatibility of "new" TV standards and "existing" data transmission channels of video information and TV standards, we propose [[the]] a method (11M) ~~of claim 10~~, which differs by the fact, that

~~the video signal with the basic quality level is formed in the facility of video signal formation and is converted in the facility of conversion into the standard video signal (A6-3. C10-5) and it is transmitted to the information display facilities of the users and/or a non-restricted group of users provided with standard facilities of video information display (B4-1. B4-3)~~

the users consist of two types of users: registered users and non-registered users; the transmitting of the basic quality level signal is provided to the display components of the registered users and non-registered users (B1-2).

[0063] [[12]] Should the element of video information of low quality video signal of the video information occur to be determined as the average value from video information elements of high level quality video signals covered by the above element of video information with low quality level (A4. C8), for the purpose of reduction of the volume of video information transmitted through communication channels, we propose ~~[[the]] a method (12) of claim 9, or 10,~~ which differs by the fact, that the pixel of the video signal of the extended quality level of video image in the facility component of video signal formation or in the facility component of video signal conversion is determined by subtraction of high quality level pixel of video image (I3); the video signal pixel with basic quality level in the facility component of video signal conversion or the facility component of information display video signal pixel of high quality level of the video image is formed by way of summing the video signal pixel of the extended quality level and the video signal pixel of the quality basic level (J3).

[0064] [[13]] Should the element of video information (pixel) of low quality video signal occur to be determined as one of pixels of video signals of high quality level forming a part of the video image sector restricted with boundaries of the above video signal pixel of low quality level of video image (A1-2 or A2-2), for the purpose of reduction of the volume of video information transmitted through communication channels and reduction of volume of computations in video signal conversion facility component, we propose any method (13M) ~~of claims 6, 9, or 10,~~ which differs by the fact, that the video signal pixel of basic quality level in the facilities components of video signal formation or video signal conversion is determined as equal to the video signal pixel of high quality level forming a part of video signal pixels of high quality level of video image sector, included into video image sector, restricted with boundaries of the above video signal pixel of the basic quality level (A8, C11-1); the other pixels are determined by way of subtraction of video signal pixels with basic quality level from the pixels of high quality level ~~(A8-2, C11-2) (I2),~~ video signal pixel of high quality level is determined in the facilities

components of video signal conversion or information display as corresponding to video signal pixel of the basic level (~~C11-3, D4-1~~)(I4); the other video signal pixels of high quality level included in the video image sector restricted with the boundaries of the pixel of the relevant video signal of the basic quality level are formed by way of summing the relevant video signal pixels of the extended quality level and the relevant video signal pixel of the basic quality level (~~C11-4, D4-2~~)(J4).

[0065] [[14]] With a view to provide the compatibility of the "new" TV standards and the "existing" video data transmission channels and TV standards, to reduce the effect of the negative factors to the users' health at the simultaneous perception of video information by means of one or different information display facilities components, to sum video signals of basic and extended levels in one video image formed in the information display facility component, we propose [[the]] a method (14M) of any claims 1-13, which differs from the method (1M) by the fact, that the screen is scanned with an electronic ray in the information display facility component using the CRT, video signals coding boundaries of the sector of extended video image are transmitted to the electron gun to the facility component of sector output control at the entry of the electronic ray into the sector area with the other quality level, to the control facility component of the image sector output with control signal delivery to the change of the size of the luminous spot on the CRT screen to the size corresponding to the size of a pixel of video image of video image sector (~~D5~~)(O3-2).

[0066] [[15]] With a view to provide the operation for long distances from the source of video information to the video display facility component and provision of individual and grouped users with video information at the minimum requirements for the information display facilities components, we propose [[the]] a method (15M) of claim 6 or 10, which differs by the fact, that converted video signals of the low or basic quality level previously are recorded on a video signal medium (A9-1), the video signal of low or basic quality level is displayed synchronously with produced video signals of the high or extended quality level accordingly (A9-2).

[0086] FIG. ~~[[14]]~~ 15. Block diagram of the method of interactive foveal television of ~~claim 10~~ with conversion of video signals into video signals of basic and extended quality levels.